## IN THE SPECIFICATION

**Please replace the paragraph beginning at page 2, line4 of the specification with the following rewritten paragraph:**

What are described in patent applications D1 and D2 are a method and an apparatus in which the object for examination is at least partly enclosed by a field-generating arrangement. The accessibility of the examination zone or target region is impaired in this way. This may, for example, give rise to states of anxiety in sensitive ~~patents~~patients during medical examinations.

**Please replace the paragraph beginning at page 3, line15 of the specification with the following rewritten paragraph:**

One possible way of changing the position in space of the two sub-zones is for a coil and/or permanent-magnet arrangement (or parts thereof) intended for generating the magnetic field on the one hand, or the object containing the magnetic particles on the other hand, to be moved relative to one another. This is a preferred method when very small objects are being examined with very high gradients (microscopy). By contrast, ~~claim 2 describes~~ a preferred embodiment that~~of the present invention~~ does not require any mechanical movements. The position in space of the two sub-zones can be changed relatively quickly in this case, which provides additional advantages for the acquisition of signals that depend on the magnetization in the region of action.

**Please replace the paragraph beginning at page 3, line24 of the specification with the following rewritten paragraph:**

In another embodiment of the present invention, ~~By means of the embodiment claimed in claim 3, it is possible for the method according to the invention to be used for determining~~ the spatial distribution of the magnetic particles is determined. Changing the position of the two sub-zones within the region of action causes a variation in the (overall) magnetization in the region of action. If, therefore, the magnetization in the region of action or physical parameters affected thereby are measured, information on the spatial distribution of the magnetic particles in the region of action can be derived from these measurements. In practice,

the particles do not have identical magnetic properties. For example, a proportion of the particles may be saturated at a magnetic field strength at which another proportion are in a state of non-saturation. This however produces an (additional) non-linearity in the magnetization characteristic that, when there is a change in the position of the two sub-zones, leads to a change in the magnetization in the region of action.

**Please replace the paragraph beginning at page 4, line3 of the specification with the following rewritten paragraph:**

In another embodiment, ~~In the embodiment claimed in claim 4,~~ signals that are proportional to the temporal change in the magnetization in the region of action are acquired. If these signals are to be as large as possible, it is important for the position in space of the two sub-zones in the region of action to be changed as quickly as possible. To acquire these signals, use may be made of a coil by which a magnetic field is generated in the region of action. Preferably however, a separate coil will be used. The change in the position in space of the sub-zones may take place by means of a temporally variable magnetic field. This being the case, a signal that is likewise cyclic is induced in a coil. However, reception of this signal proves to be difficult inasmuch as the signals generated in the region of action and the temporally variable magnetic field are active simultaneously; a distinction cannot therefore readily be made between the signals induced by the magnetic field and those induced by the change in magnetization in the region of action.

**Please replace the paragraph beginning at page 4, line 15 of the specification with the following rewritten paragraph:**

In yet another embodiment, ~~With the embodiment claimed in claim 5, it is possible for~~ the magnetic particles situated in the region of action are ~~to be~~ heated ~~up~~. If the spatial position of the first sub-zone is changed slightly, the magnetization of those particles that are situated in the first sub-zone, or that change from the first to the second sub-zone or vice-versa, changes when this is done. As a result of this change in magnetization, heat losses arise due to very well known hysteresis effects, or effects similar to those of hysteresis, in the particles or due to the excitation of particle movements, and the temperature of the medium surrounding the particles is increased in a heating-up region. If the first sub-zone of the magnetic field is

displaced through the whole of the region of action, then the heating-up region corresponds to the region of action. The smaller the first sub-zone, the smaller is the size of the absolute minimum heating-up region.

**Please replace the paragraph beginning at page 5, line 3 of the specification with the following rewritten paragraph:**

In another embodiment, an apparatus having ~~An apparatus for performing the method according to the invention is specified in claim 6. In the embodiment of this apparatus that is claimed in claim 7,~~ a gradient coil arrangement is provided to generate the magnetic field in the region of action. This magnetic field is zero at a point along the axis of the windings and increases almost linearly at opposite polarities on the two sides of this point. Only in the particles that are situated in the zone around the point at which the field is zero is the magnetization not saturated. In the particles outside this zone the magnetization is in a state of saturation. A gradient magnetic field of this kind may be generated ~~in particular by the embodiment of apparatus claimed in claim 8, or also in claim 9~~.

**Please replace the paragraph beginning at page 5, line 12 of the specification with the following rewritten paragraph:**

In an embodiment ~~With the embodiment claimed in claim 10~~, it is possible not only for the region of action to be positioned outside the arrangement having means for generating magnetic fields but also for the region of action to be separated in space from the entire apparatus. In this case, a wall of a housing surrounding the apparatus is, for example, situated between the region of action and the apparatus. The method according to the invention may be performed as soon as the object containing the magnetic particles is in the region of action and close to this side of the housing. In addition, the arrangement for performing the method according to the invention that is situated in the apparatus is protected against external influences. If the enclosing housing is opaque, a patient is kept from seeing into the apparatus at the time of medical examinations, investigations or treatments and in this way the mental stress on the patient is further reduced. ~~If the object for examination is to lie on a table during the examination, the arrangement may be laid out as claimed in claim 11.~~

**Please replace the paragraph beginning at page 5, line 24 of the specification with the following rewritten paragraph:**

In the embodiment ~~claimed in claim 12~~, the zone generated by the gradient coil arrangement around the zero point of the field (i.e. the first sub-zone) is shifted within the region of action by the temporally variable magnetic field. If this magnetic field follows a suitable pattern over time and is suitably oriented, the zero point of the field can pass through the whole of the region of action in this way. When this happens, either the region of action can be heated up or the spatial distribution of the magnetic particles can be determined.

**Please replace the paragraph beginning at page 5, line 30 of the specification with the following rewritten paragraph:**

The change in magnetization that goes hand in hand with the displacement of the zero point of the field can be detected ~~in the embodiment claimed in claim 13~~, and the spatial distribution of the magnetic particles in the examination zone can be determined from the signal measured. The coil used for receiving the signals generated in the region of action may in this case be a coil that is already being used to generate the magnetic field in the region of action. There are however also advantages in using a separate coil for reception, ~~as claimed in claim 14,~~ because this coil can be decoupled from the coil arrangement that generates a temporally variable magnetic field. Also, an improved signal-to-noise ratio can be obtained with a coil, but even more so with a plurality of coils. In analyzing the signals received, use is made of the fact that the magnetization characteristic of the particles is not linear in the zone in which the magnetization changes over from the non-saturated state to the saturated state. This non-linearity ensures that, for example, a magnetic field that varies sinusoidally in time at a frequency f causes a temporally variable induction at the frequency f (fundamental wave) and at whole-number multiples of the frequency f (harmonic waves or higher harmonics) in the zone of non-linearity. Analysis of the harmonic waves offers the advantage that the fundamental wave of the magnetic field, which field is active simultaneously to shift the field-free point, has no effect on the analysis.

**Please replace the paragraph beginning at page 6, line 31 of the specification with the following rewritten paragraph:**

In Fig. 1 is shown an apparatus with which the method according to the invention can be performed. For examination purposes, a patient positions himself directly in front of the vertical side 2a of the housing 2b. As an alternative, the apparatus shown may also be arranged for horizontal operation. When this is the case, the side 2a of the housing extends horizontally and the patient lies on it. For this purpose, the side 2a of the housing may be configured as a patient table, or a patient table is mounted in addition above the side 2a of the housing. Before an examination, a liquid or a meal containing magnetic particles is administered to the patient 1.

**Please replace the paragraph beginning at page 7, line 30 of the specification with the following rewritten paragraph:**

To allow information to be obtained on the spatial concentration of the magnetic particles in the object for examination (the patient in this case), there are, in and on the housing 2b of the apparatus shown in Fig. 1, coils and pairs of coils whose magnetic fields flow through the region of action. The region of action is situated in this case in front of the vertical side 2a of the housing, i.e. outside the housing 2b. A first pair of coils 3 comprises the two windings 3a and 3b that surround one another co-axially, through which currents flow in opposite directions of circulation and whose common axis extends approximately perpendicularly through the vertical side 2a of the housing. The gradient magnetic field generated in this way is shown in Figs. 2a and 2b by means of the field lines 300, 300a and 300b. The field lines 300a of the magnetic field generated by the outer winding 3a are shown as solid lines and the field lines 300b of the magnetic field generated by the inner winding 3b are shown as dashed lines. The magnetic fields from the two windings are superimposed on one another to form the magnetic field indicated by the field lines 300. This field has a gradient in the direction of the common axis of the pair of coils 3 and at one point along this axis it reaches a value of zero. The position of this field-free point along the common axis is selected in such a way that it is located outside the housing 2b and inside the region of action in which the patient is situated. Starting from this field-free point, the strength of the magnetic field increases in all three directions in space with increasing distance from the point. In a zone 301 (the first sub-zone) around the field-free point, which zone is indicated, the field strength is so low that the magnetization of magnetic particles situated in it is not saturated. In the remaining zone outside 301 (the second sub-zone 302), the magnetization of the particles is in a state of saturation.

**Please replace the paragraph beginning at page 9, line 17 of the specification with the following rewritten paragraph:**

To generate magnetic fields that extend in space perpendicularly to the common axis of the coils 3a and 3b, two further pairs of coils having windings 5a, 5b and 6a, 6b are provided, which windings 5a, 5b and 6a, 6b are situated in respective small housings on side 2a of the housing 2b. The coils forming a pair of coils are so arranged in this case that their axes are likewise situated on a common coil-pair axis. These two coil-pair axes extend through the region of action, are perpendicular both to one another and to the axis of the coils in coil arrangement 3, and intersect the latter at a common point, preferably at the field-free point of the coil arrangement 3.

**Please replace the paragraph beginning at page 9, line 25 of the specification with the following rewritten paragraph:**

It is however also possible for the windings 5a, 5b and 6a, 6b of the pairs of coils 5 and 6 to be arranged inside the housing 2b. For this purpose, the four windings 5a, 5b, 6a, 6b are, for example, arranged symmetrically about the common axis of the coil arrangement 3, with the windings forming a pair of coils being situated opposite one another. The windings may be positioned inside or outside the coil arrangement 3. The axes of the coils formed by windings 5a, 5b, 6a, 6b extend parallel or at an angle other than 90° to the common axis of the coil arrangement 3, which means that the axes of the windings forming a given pair of coils are then no longer situated on a common axis. This arrangement causes a magnetic field that has a component perpendicular to the common axis of the coil arrangement 3 to be formed, in the region of action outside the housing 2b, along an arcuate region between the windings of a given pair of coils. The shape of the windings 5a, 5b, 6a and 6b need not necessarily be circular and, allow the particular arcuate magnetic field to be optimized, may also be of other shapes.